

Natural Inquirer Scientific

Process Module



Unit 2, Lesson 5: Tables, Charts, Graphs, and Maps

Objectives:

- Students will be able to read, analyze, and explain information from a science article.
- Students will be able to explain a variety of visual aids (e.g., graphs, tables, maps, charts).
- Students will be able to create graphs based on scientific findings.

Time Needed:

2 class periods

Materials (for each student or group of students):

- *Natural Inquirer* monographs or articles
- Blank paper (unlined)
- Blank paper (graph)
- Writing utensil

When scientists present their findings, they use aids that summarize the data and the findings. These aids include, for example, tables, charts, graphs, photographs, illustrations, maps, and text. Tables usually include numbers that summarize the data or present the results of statistical analyses. Scientists should use the data presentation aid that most clearly and easily presents the findings to the reader. Often, these aids are shown as evidence of the analytical results. A typical research project collects too much data to share all of the data with the reader. So, the accurate summarization of data and findings using these aids is also an important part of maintaining credibility in the scientific process.

You may want to stress the importance of understanding tables, charts, graphs, illustrations, and maps to your students. For your visually and spatially-oriented learners, the use of these aids will be a welcome relief from the text. It is also important for your students to practice creating their own visual presentation aids, as they will do in this activity.

Methods:

Prep

Familiarize yourself with a *Natural Inquirer* monograph or article which has a bar graph or pie chart presented in the text. Some potential articles include (but are not limited to):

- Pack to Back
- Moving Spore-adically (Invasive Species edition)
- Toad-ally Awesome (Ecosystem Services edition)
- What Goes Around Comes Around (Ecosystem Services edition)
- Show Me the Money
- Don't Litter the Stream (Hawaii-Pacific Islands edition)
- Left High and Dry (Hawaii-Pacific Islands edition)

Create a simple example of a bar graph or pie chart to share with students.

Day One

First, have students review the tables, charts, graphs, and maps in the articles to see if they can gather any information. Ask students if the tables, charts, and graphs are understandable by themselves? Tell students that scientists have a goal of making tables, charts, and graphs stand alone, meaning they can give the reader information even if the reader hasn't read the remainder of the text. Ask students why it's important to have tables, charts, and graphs stand alone.

Have students read the chosen monograph or article in its entirety. Remind students that they should be reading the figures and captions along with the main body of text.

Once all students have finished reading, direct students to re-examine the bar graph or pie chart that is in the text. Ask students to explain what the graph or chart means using information they learned in the text.

Day Two

Review bar graphs and pie charts with the students. Share with students the simple example bar graph or pie chart you have created. Walk students through the process of creating the bar graph or pie chart. Then, have students individually create their own bar graph or pie chart. For data, students can collect simple data from around the school. For example:

- Dead or living trees visible from the classroom windows
- Types of shoes students are wearing in class
- Number of times letters are on the board (i.e., A=5)
- Number of students who arrived to school on bus, car, or walking

Have students share their bar graph or pie chart with another students. Partners should look at the graph or chart and be able to interpret what it is telling them.